
ZONE A REMEDIAL ACTIVITIES UPDATE

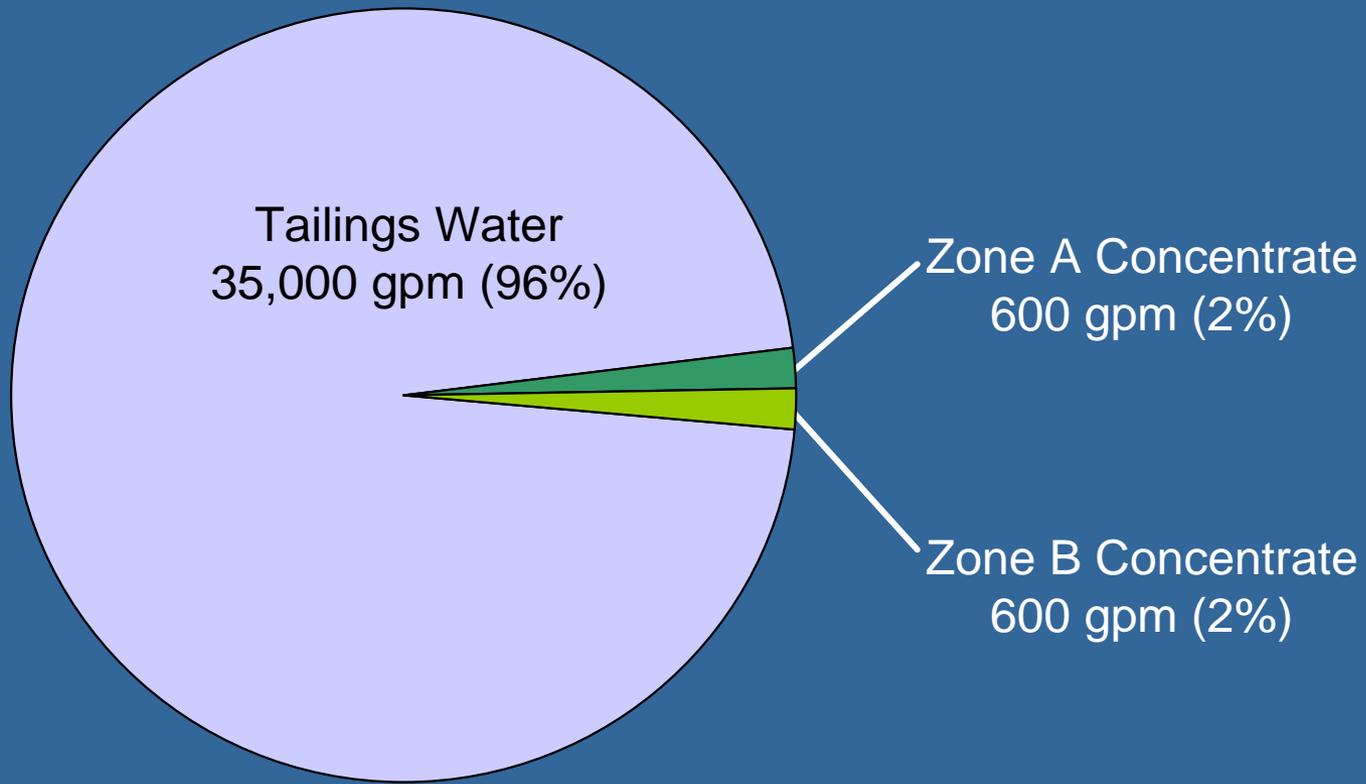
Kelly Payne
Kennecott Utah Copper Corporation

June 16, 2004

TONIGHT'S DISCUSSION

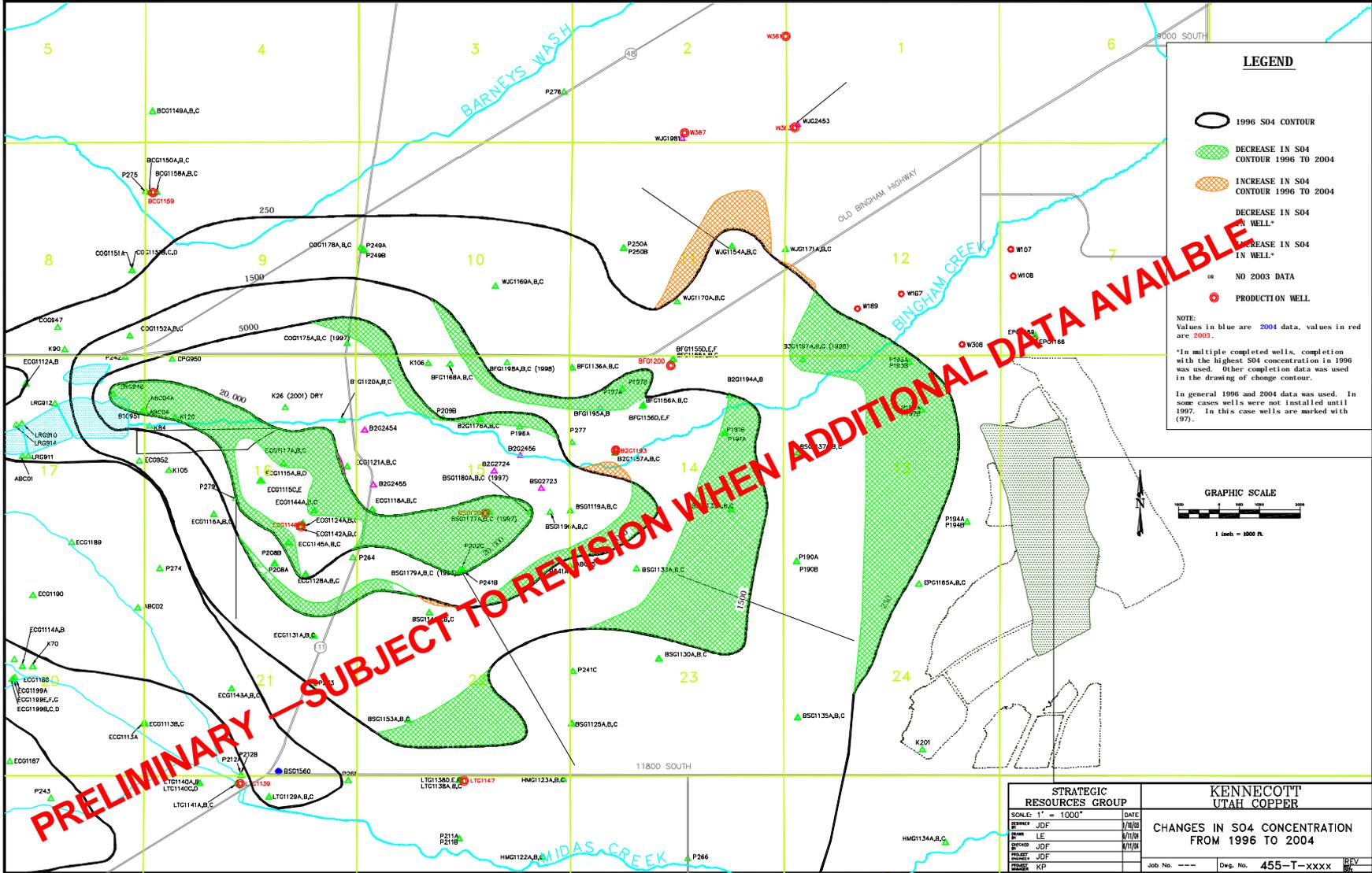
- Effects of RO concentrate disposal to KUCC tailings impoundment
- Preliminary 2004 Zone A monitoring results
- Revised Zone A groundwater extraction plan
- Zone A RO Plant update
- Acid water treatment update

CONCENTRATE FLOW CONTRIBUTIONS TO TAILINGS SYSTEM



WATER CHEMISTRY COMPARISON

Parameter (mg/l)	Average Tailings Water 2002	Typical Zone A Concentrate	Typical Zone B Concentrate	Composite
Discharge (gpm)	35,000	600	600	36,200
TDS	7,934	10,317	8,304	7,980
pH	6.97	7.30	7.57	6.99
SO ₄	4,103	5,971	3,100	4,117
Ca	716	2,054	1,500	751
Cl	1,623	680	920	1,596
K	142	19	18	138
Mg	510	620	540	512
Na	940	294	500	922
Al	0	<0.010	<0.125	0
As	0	0	<0.02	0
Cd	0	<0.001	<0.0025	0
Cu	0.155	0.027	0.022	0.151
Mn	12	<0.010	<0.01	12
Pb	<0.005	<0.005	<0.0025	<0.005
Se	0.042	0.014	0.020	0.041
Zn	0.054	0.022	<0.025	0.053



LEGEND

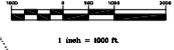
- 1996 SO4 CONTOUR
- DECREASE IN SO4 CONTOUR 1996 TO 2004
- INCREASE IN SO4 CONTOUR 1996 TO 2004
- DECREASE IN SO4 IN WELL*
- INCREASE IN SO4 IN WELL*
- or NO 2003 DATA
- PRODUCTION WELL

NOTE:
Values in blue are 2004 data, values in red are 2003.

*In multiple completed wells, completion with the highest SO4 concentration in 1996 was used. Other completion data was used in the drawing of change contour.

In general 1996 and 2004 data was used. In some cases wells were not installed until 1997. In this case wells are marked with (97).

GRAPHIC SCALE



PRELIMINARY

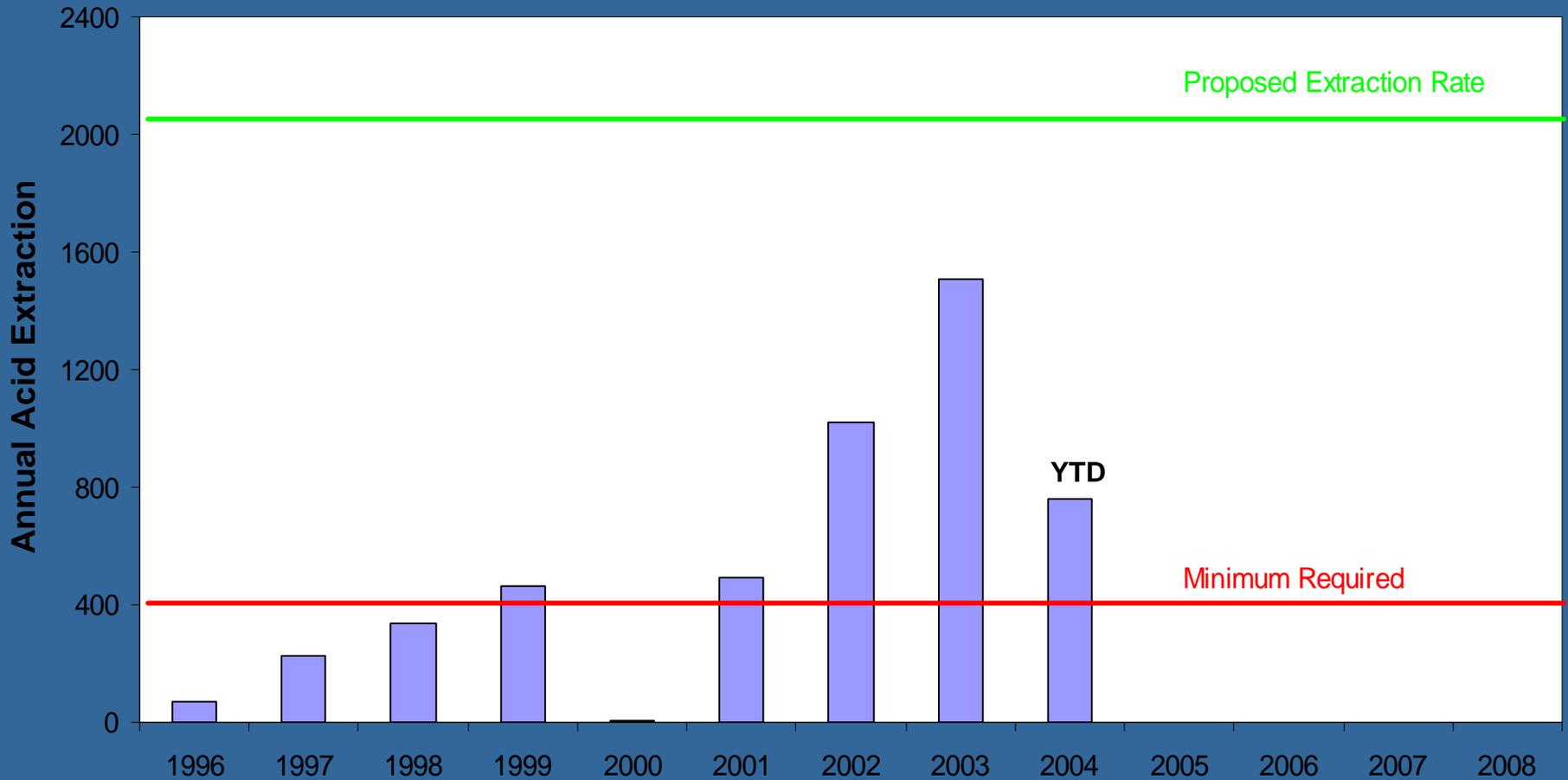
SUBJECT TO REVISION WHEN ADDITIONAL DATA AVAILABLE

STRATEGIC RESOURCES GROUP		KENNECOTT UTAH COPPER	
SCALE: 1" = 1000'	DATE	CHANGES IN SO4 CONCENTRATION FROM 1996 TO 2004	
DESIGNED: JDF	7/20/04	Job No. ---	Dwg. No. 455-T-XXXX
DRAWN: LE	8/1/04		
CHECKED: JDF	8/11/04		
APPROVED: JDF			
DESIGNED: KP			

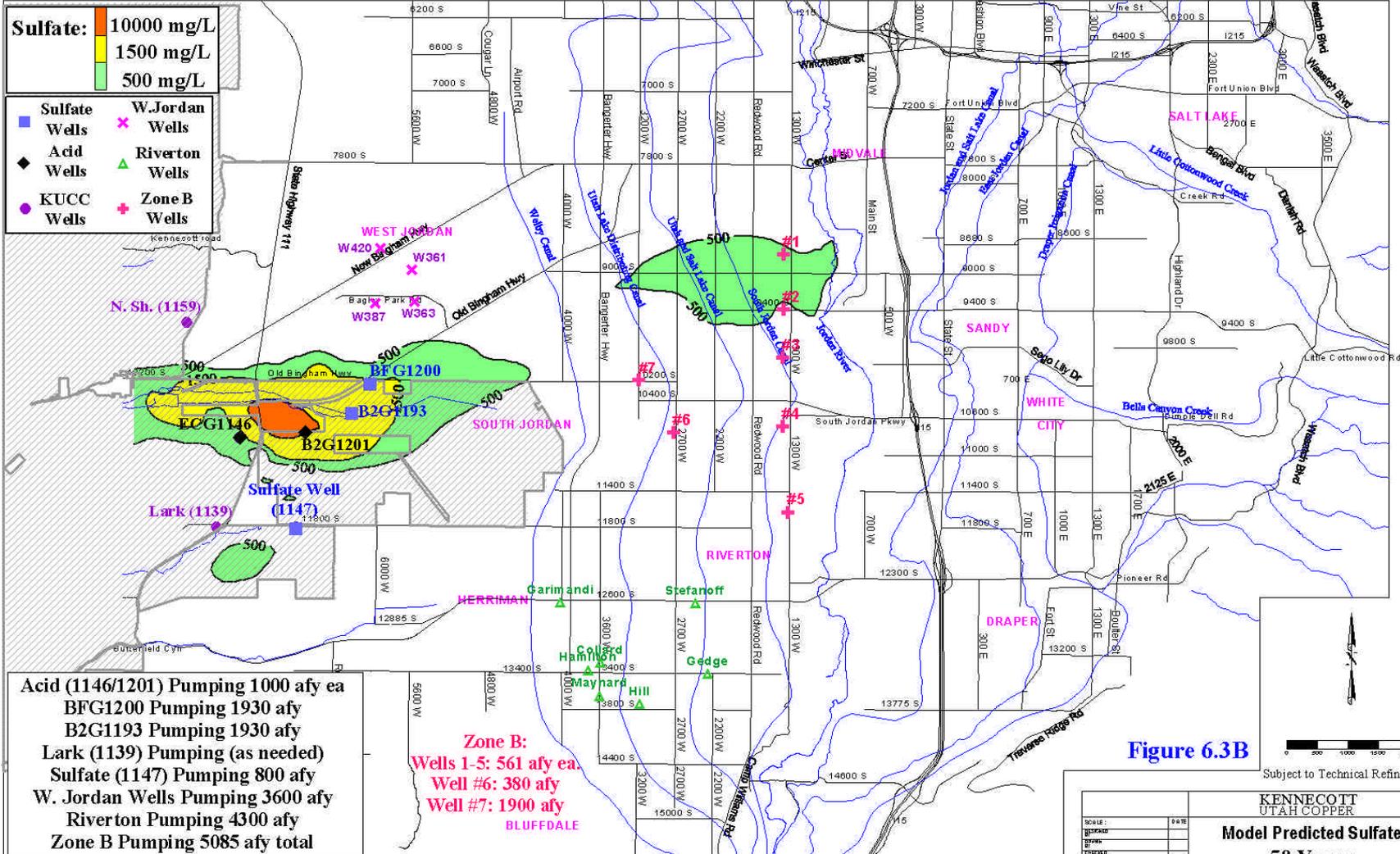
ZONE A REMEDIAL EXTRACTION PLAN

- Planned annual extractions:
 - Barrier Wells/RO Feed: 4670 afy
 - Acid Wells: 2020 afy

ZONE A REMEDIAL EXTRACTION PLAN



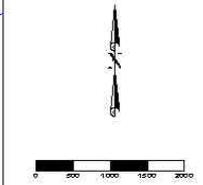
Model Predicted Sulfate Concentrations



Acid (1146/1201) Pumping 1000 afy ea
 BFG1200 Pumping 1930 afy
 B2G1193 Pumping 1930 afy
 Lark (1139) Pumping (as needed)
 Sulfate (1147) Pumping 800 afy
 W. Jordan Wells Pumping 3600 afy
 Riverton Pumping 4300 afy
 Zone B Pumping 5085 afy total

Zone B:
 Wells 1-5: 561 afy ea.
 Well #6: 380 afy
 Well #7: 1900 afy

Figure 6.3B



Subject to Technical Refinement

KENNECOTT UTAH COPPER	
Model Predicted Sulfate	
50 Years	
SCALE:	DATE:
DESIGN:	
DRAWN:	
CHECKED:	
APPROVED:	
JOB No.	DWG No.
	REV:

ZONE A RO PLANT UPDATE

- Operation of Phase 1 (1,500 gpm) was started in September 2003
- Detailed Design of Phase 2 is in progress (70% complete)
- Conditional Use Permit was obtained
- Building Permit has been obtained
- Application for System Number was submitted to the Division of Drinking Water

ACID WATER TREATMENT UPDATE

- Acid Well #2 began pumping in August 2003
- Current projections suggest excess neutralization potential in tailings through early 2007.